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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/512,410

10/25/2004

Susumu Hoshi

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EXAMINER

MULLIS, JEFFREY C

ART UNIT

PAPER NUMBER

1711

MAIL DATE

DELIVERY MODE

08/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/512,410

Applicant(s)

HOSHI ET AL.

Examiner

Jeffrey C. Mullis

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification as filed does not disclose that the vinyl aromatic polymer blocks have a block rate of 10-90%.

Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear what is meant by "vinyl aromatic hydrocarbon polymer blocks" in that applicants remarks indicate that such blocks are homopolymeric while the claims recite that the block rate is no 100% but rather 10-90%. Furthermore, the claims recite that the block rate refers to the styrene content in the entire block copolymer and it is not clear how this pertains to only the vinyl aromatic hydrocarbon blocks.

The specification Examples discloses processes for producing mixtures of block copolymers and in some examples such as example 1 actually produces a mixture of block copolymer with styrene-butadiene apparently random copolymer and it is therefore unclear what applicants mean in line 1 of claim 1 by "(a) block copolymer" in that the same language appears in the specification and yet appear to apply to mixtures

Art Unit: 1711

of materials. It is especially unclear whether applicants' characteristics such as for instance "block rate" apply to mixtures including components not even containing block copolymers.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moczygamba (US 5,227,419).

Patentees in run 2 in column 9, lines 6 et seq disclose a process in which the following charge sequence is used: 0.16 buLi, 30 styrene, 0.058 buLi, 12 parts styrene, 12.5 parts butadiene, 35 parts of equal weight styrene/butadiene and 10.5 parts of styrene such as would produce a block copolymer composition with 3 different molecular weight homopolystyrene blocks with the highest molecular weight block

Art Unit: 1711

calculated as having a molecular weight of greater than 120,000 and the two lower block molecular weight blocks well within the range of 5-30,000 as required by the claims based on the art accepted assumption of 1 mole of chains generated from one mole of alkyl lithium initiator. While the a bit less than 40% of the vinyl aromatic homopolymer blocks by weight are accounted for by the two lower molecular weight blocks (assuming that the weight percent of the two lower molecular weight blocks are proportional to the weight of the step the 2 and step 5 styrene charges with an adjustment for the fact that a minor amount of the step 2 styrene will add to the first formed block rather than the second formed block resulting from the second charge of BuLi). However, applicants level of 40 percent would occur if slightly more styrene or BuLi were used for the second charge of styrene or BuLi and as set out in Table IV of the patent, such may be used. Hence to arrive at applicants invention by selecting from the Table IV of patentees would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention in the expectation of adequate results absent any showing of surprising or unexpected results.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshi et al. (US 6,235,847).

Patentees disclose a block copolymer composition having two block copolymers in a ratio of 30/70 to 70/30 (column 6, lines 49-55 and in which the terminal polystyrene blocks as a whole contain at least one fraction of molecular weight of 10-50,000 and one fraction of molecular weight of 120-150,000 (see the paragraph bridging columns 7

Art Unit: 1711

and 8). Choice of the minimum molecular weight of 30% highest molecular weight block copolymer with a single 120,000 molecular weight block and the remaining 3 terminal blocks for both block copolymers of 30,000 molecular weight would result in a composition having all of applicants limitations in combination. Although the examples and comparative examples of patentees fail to disclose any a single experiment with all of applicants limitations in combination, choice of such by selecting from the workable variables in patentees specification would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention in the expectation of adequate results.

The previous rejection has been withdrawn based on applicants remarks and amendment.

There still appears to be lack of clarity re the term "vinyl aromatic hydrocarbon blocks" in the claims for the reasons now set out in the above rejection under 35 USC 112, second paragraph.

Any inquiry concerning this communication should be directed to Jeffrey C. Mullis at telephone number 571 272 1075.

Jeffrey C. Mullis
Primary Examiner
Art Unit 1711

JCM

7-25-07

Jeffrey Mullis
Primary Examiner
Art Unit 1711

